

AIRCRAFT CIRCULARS
NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

No. 99

THE PARNALL "PIPIT" (BRITISH)
A Single-Seat Ship's Fighter

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THE PARNALL "PIPIT" (BRITISH).*

A Single-Seat Ship's Fighter.

The Parnall "Pipit" is a single-seat ship's fighter, fitted with a Rolls-Royce "F" type engine. The lines are particularly clean, all extraneous resistances being reduced to a minimum. It is an all-metal type, stainless steel and duralumin forming the chief structural materials. Land and seaplane landing gears are quickly interchangeable, as they are self-contained units, attached to the fuselage at common fixing points.

Accessibility is one of the features of the design. All cowling and fuselage fairing from the nose to the tail is quickly detachable.

The armament consists of two synchronized Vickers guns, laid on either side of the pilot at sea level, with the barrels protruding into troughs in the fuselage sides. Provision is also made for carrying bombs under the bottom wings.

A short-wave wireless set, working on a fixed aerial, is located immediately behind the pilot, and the oxygen apparatus, Very pistol, together with other service equipment, is conveniently disposed around the cockpit.

The cockpit is particularly free from draughts at all speeds, and sufficient heat is supplied by the retractable radiator to

*From Flight, June 13, 1929.

obviate the necessity for electrically heated clothing up to 20,000 feet under winter conditions; while a controllable vent regulates the temperature for hot weather.

The disposition of the wings and fuselage shape forward combined with an adjustable seat, afford the pilot excellent vision for fighting purposes or landing.

Details of the performance with Rolls Royce F.XII.S engine may not be published. The airplane, however, has a very good performance with the Rolls Royce F.XI unsupercharged engine, and the slow alighting speed of 55 M.P.H., coupled with servo-actuated brakes independently operated on either wheel, greatly facilitates the operation of deck landing.

Wings.— Equal wing span, single bay, staggered biplane.

The wings are detachable in two boxed units with jury struts fitted without slacking flying wires. The duralumin spars consist of three drawn sections riveted together and carry pressed duralumin ribs. Gap struts and drag struts are of stainless steel. The top center section, which carries an auxiliary skin type radiator, is attached to the fuselage by four steel struts and bracing wires. Ailerons are fitted to all four wings.

Fuselage.— Rectangular structure of square duralumin struts and stainless steel tubes faired to an oval section. The aluminum engine cowl and fabric-covered fuselage panels are all quickly removable.

Tail Unit.-- Monoplane type, with balanced rudder, and elevators fabric-covered. Stabilizer is adjustable.

Landing gear.-- Cross axle Vee-type. The front legs incorporate double-acting oleo shock absorbers. Palmer type wheel brakes are fitted and servo actuated from the rudder bar. Interchangeable seaplane chassis with twin single-step long type duralumin floats can be fitted alternatively.

Power plant.-- One 495 hp Rolls Royce F.XI water-cooled engine on riveted stainless steel mounting. Under-slung retractable fuselage radiator in series with wing radiator. Two main fuel tanks in top wings, capacity 68 gallons. Auxiliary tank 18 gallons. Gravity feed.

Accommodation.-- Pilot behind cut-out trailing edge of center section. Seat and rudder bar adjustable.

When fitted with Rolls Royce F.XI unsupercharged engine, the "Pipit" has the following weights:

Weight empty	3050 lb.
Total weight	3980 "
Wing loading	11 lb./sq.ft.
Power "	8 lb./hp

Dimensions

Length	26 ft.
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Span	35 "
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Areas:

Total wing	361 sq.ft.
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Ailerons	46 "
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Stabilizer	25.6 "
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Elevator	19.64 sq.ft.
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Fin	4.87 "
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Rudder	13.55 "
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Performance

Speed at ground level	168 M.P.H.
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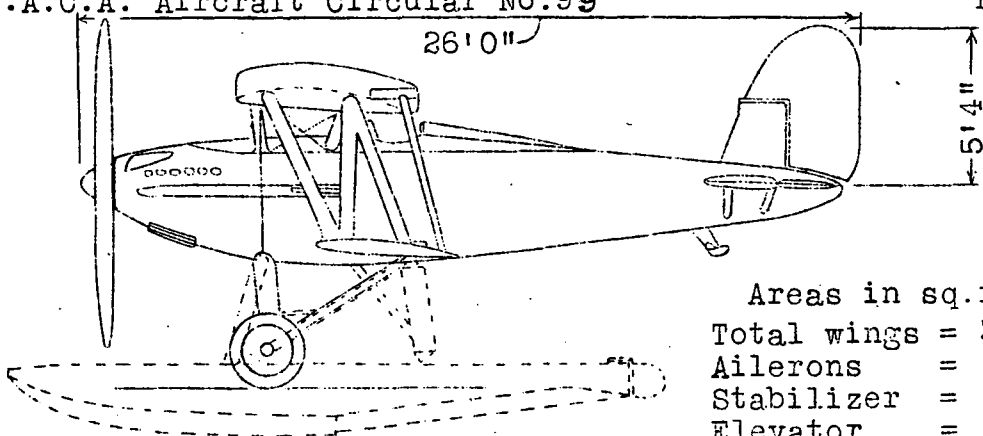
" " 3000 feet	173 "
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" " 10000 "	168 "
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Landing speed	55 "
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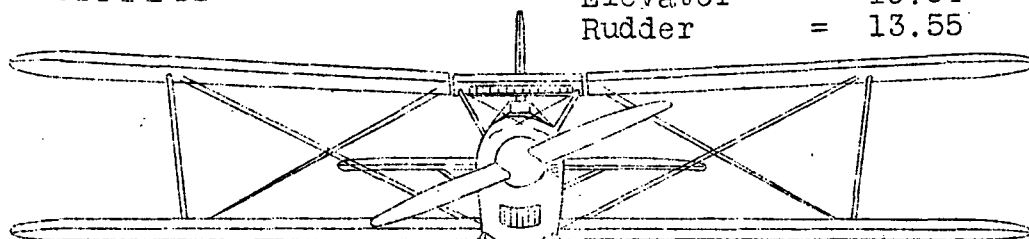
Rate of climb at 3000 feet	1600 ft./min.
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Climb to 10000 feet	7½ minutes.
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Areas in sq.ft.

Total wings	=	361.0
Ailerons	=	46.1
Stabilizer	=	25.6
Elevator	=	19.84
Rudder	=	13.55



Fin = 4.87

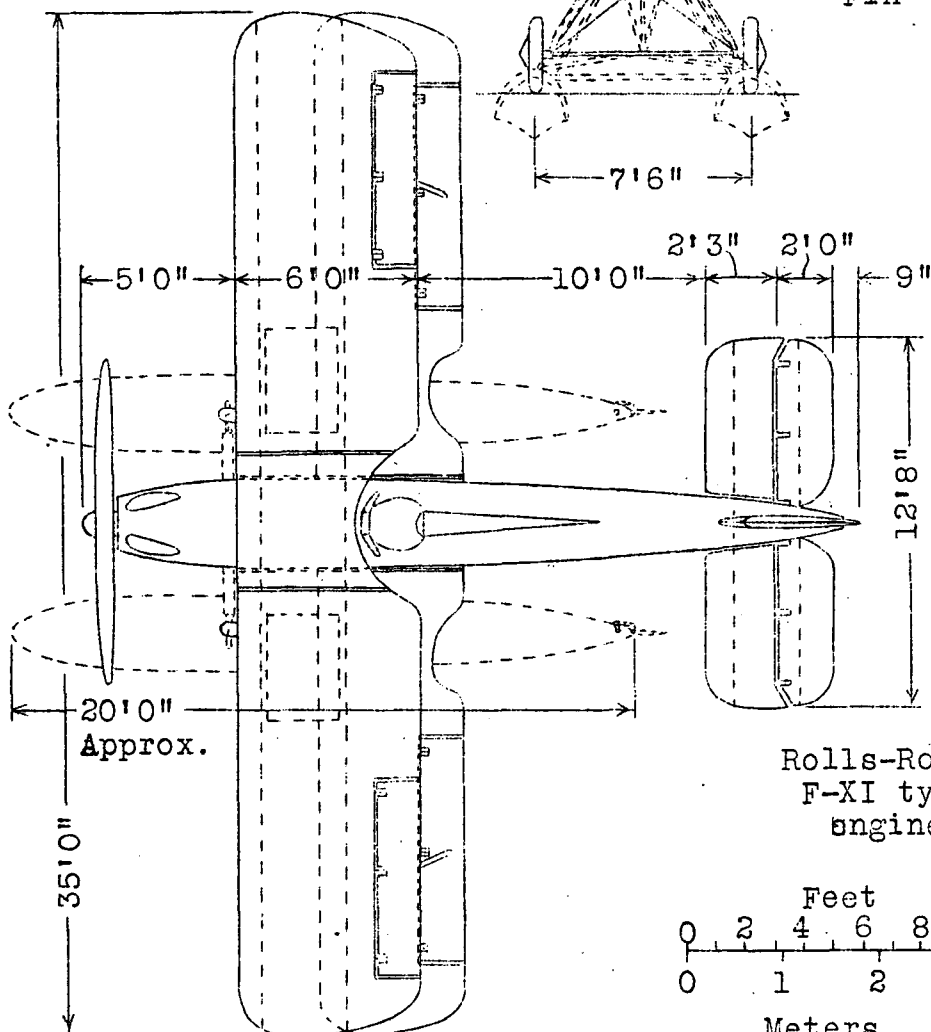
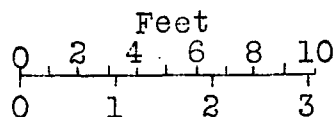


Fig.1 General arrangement drawings of the Parnall "Pipit" airplane. The seaplane landing gear is shown in dotted line.

Rolls-Royce
F-XI type
engine



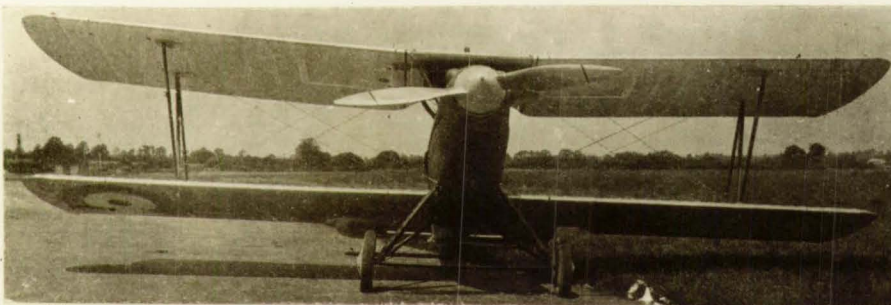


Fig.2 The Parnall "Pipit" airplane. A dihedral on the top plane only is one of its characteristic features.

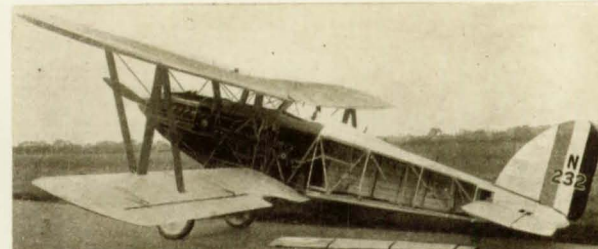


Fig.3 View of the Parnall "Pipit" airplane with fuselage side panels removed.

*Taken from "Flight"
June 13, 1928*

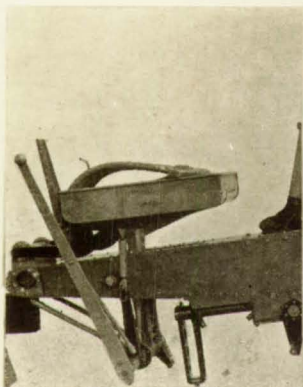


Fig.4

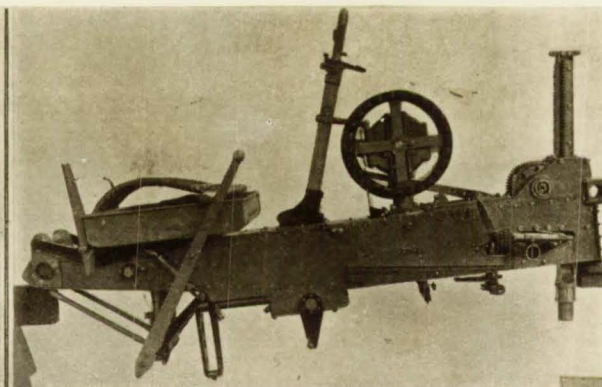


Fig.5

Fig.4 & 5 The control unit on the "Pipit". Three-point suspension is adopted, and the pilot's seat can be raised and lowered. It is shown in the raised position on the left (Fig.4). Rubber cords are used to balance the weight of the pilot. The retractable radiator is supported on a threaded column as shown, and is operated by one of the two hand wheels.

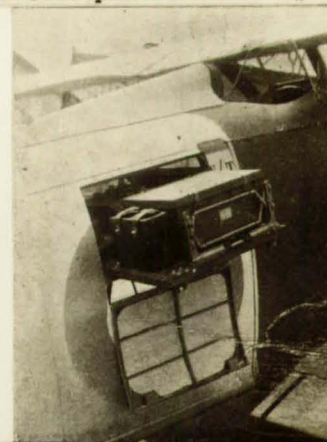


Fig.6 Wireless compartment.

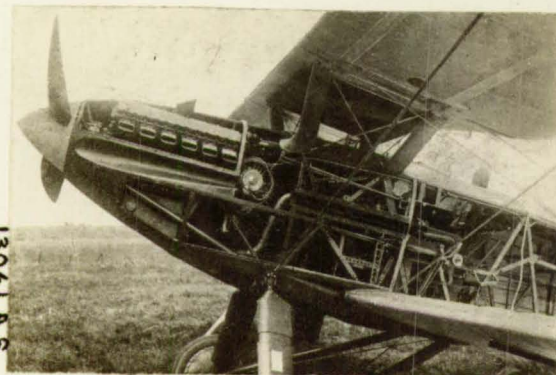


Fig.7 View showing forward portion stripped by means of quickly-detachable panels.

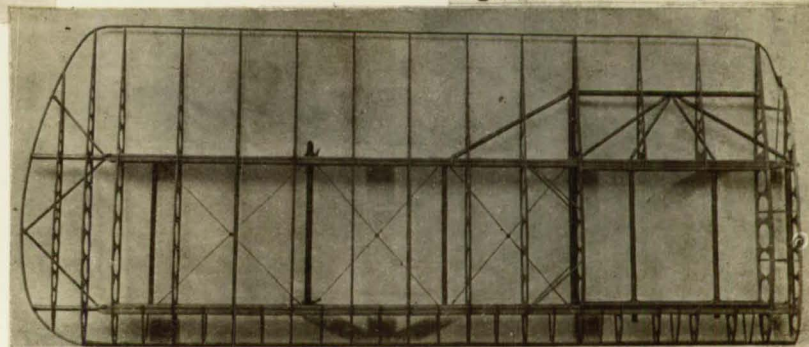


Fig.8 One of the all metal wings of the "Pipit". The gasoline tank is housed in the inner bay, and the photograph shows how the drag bracing, in the form of tubes, is carried around this bay.